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IS 7348-5 (1994): Dental vocabulary, Part 5: Terms associated with testing [MHD 8: Dentistry]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

(Reaffirmed 2006)

दंत शब्दावली

भाग 5 परीक्षण से संबंधित शब्द

Indian Standard

DENTAL VOCABULARY

PART 5 TERMS ASSOCIATED WITH TESTING

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BUREAU OF INDIAN STANDARDS
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NATIONAL FOREWORD

This Indian Standard, which is identical with ISO 1942-5 'Dental vocabulary — Part 5 Terms associated with testing', issued by the International Organization for Standardization, was adopted by the Bureau of Indian Standards on the recommendation of the Dentistry Sectional Committee and approval of the Medical Equipment and Hospital Planning Division Council.

The text of the above mentioned ISO Standard has been approved as suitable for publication as Indian Standard without deviations. Certain terminology and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

The following international standards referred to in the foot-notes of the text of this standard do not have the identical or technically equivalent Indian Standards:

ISO 604 : 1973 Plastics — Determination of compressive properties

ISO 857 : 1979 Definitions of welding processes

ISO 6892 : 1984 Metallic Materials — Tensile testing

The technical committee responsible for the preparation of this standard has reviewed the provisions of the above-mentioned ISO Standards and has decided that they are acceptable for use in conjunction with this standard.

This standard under the general title 'Dental Vocabulary' is being published in five parts. Other parts in this series are as follows:

Part 1 General and clinical terms

Part 2 Dental materials

Part 3 Dental instruments

Part 4 Dental equipment

Only the English language text of the International Standard (including alphabetical index) has been adopted in this Indian Standard.

Indian Standard

DENTAL VOCABULARY

PART 5 TERMS ASSOCIATED WITH TESTING

1 Scope

This part of ISO 1942 defines terms associated with the testing of dental products. General and clinical terms, and terms concerning dental materials, instruments and equipment are incorporated in the four other parts of this International Standard. Equivalent terms and definitions are given in both English and French.

This International Standard is intended to provide accepted definitions for a number of terms used in dentistry that could prove useful for the comprehension of documents aiming at the preparation and implementation of Standards, and to improve communication, through close cooperation with the Fédération dentaire internationale, the World Health Organization and other national or international interested organizations.

2 Use of terms printed in italic typeface in definitions

A term printed in italic typeface in a definition, an example or a note has the meaning given to it in another entry of the Vocabulary, and may be found in any part of ISO 1942. The term is only printed in italic typeface the first time it occurs in each entry.

Other grammatical forms of the term, for example plurals of nouns and participles of verbs, are printed in the same way as the basic form.

5.001 dentistry¹⁾: Science and art of preventing, diagnosing and treating diseases and malformations of and injuries to the teeth, mouth and jaws, and of replacing lost teeth and associated tissues.

5.002 dentist¹⁾: Person who after completing secondary education, or equivalent, follows a prescribed course in *dentistry*, at a recognized (or accredited) university or dental school, at the successful completion of which, he (or she) is qualified to be legally licensed (or registered) to practise dentistry, by the responsible body in the country and is capable of undertaking the prevention, diagnosis and treatment of orodental conditions at the community and individual levels by exercising independent judgement without supervision.

5.003 dental office; dental surgery: Location where dental patients are received and treated by the *dentist*.

5.004 working space of the dentist: Space organized around the *dentist* and equipped for the positioning and treatment of the patient.

5.005 dental laboratory: Workshop where technical procedures prescribed by the *dentist*, and not requiring the presence of the patient, are carried out.

5.006 dental technician²⁾: Dental auxiliary competent to perform under the prescription of the *dentist*, the *dental laboratory work*.

5.007 orthodontics: Branch of *dentistry* concerned with the study of craniofacial growth and development, the treatment or prevention of malocclusion and other dentofacial anomalies.

5.008 periodontics; periodontia: That branch of *dentistry* concerned with the study, prevention and treatment of diseases affecting the *periodontium*.

5.009 restorative dentistry: Comprehensive term covering dental procedures in the dentulous or partially edentulous mouth; these may include operative, endodontic, periodontic, orthodontic and prosthetic procedures.

5.010 conservative dentistry: That part of *dentistry* which is concerned with the treatment and restoration of individual *teeth*.

5.011 : That part of *conservative dentistry* which is concerned with the functional restoration of the *tooth*.

1) This definition is in accordance with the WHO, CIOMS definitions of a "physician" adopted by the World Health Assembly, Geneva, April 1972. The designation of dentist and dental schools may vary according to the usage of the terms in the country concerned.

2) The designation "dental technician" and his technical qualification may vary according to the countries concerned.

¹⁾ The designation of "dentistry" may vary according to the usage of the term in the country concerned.

5.012 paedodontics; pedodontics/USA/: That branch of *dentistry* which is concerned with the diagnosis, treatment and prevention of oral anomalies, conditions and injuries in children.

5.013 endodontics: That branch of *dentistry* concerned with the diagnosis and treatment of the diseases of the *pulp* and the contiguous periapical tissues.

5.014 prosthodontics; prosthetic dentistry: That branch of *dentistry* which is concerned with the functional and aesthetic rehabilitation of the masticatory system by artificial replacement of missing teeth and associated tissues.

5.015 dental material: Substance or combination of substances specially prepared and/or presented for the use of authorized persons in the practice of *dentistry* and/or its associated procedures.

5.016 dental equipment: Furniture, machines, apparatus and accessories thereto, specially manufactured and/or presented for the use of authorized persons in the practice of *dentistry* and/or its associated procedures.

5.017 dental instruments: Small hand-tools specially designed for use in *dentistry*.

5.018 dental product: Any product specially manufactured, prepared and/or presented for the use of authorized persons in the practice of *dentistry* and/or its associated procedures.

5.019 dental device: Any article, instrument or appliance, specially manufactured and/or presented for the use of authorized persons in the practice of *dentistry* and/or its associated procedures, which is neither a *dental material*, nor an item of *dental equipment*, nor has been made specifically for an individual patient.

5.020 dental pharmacological materials: Those *dental materials* which carry out their intended function by actively affecting, either locally or systemically, the normal physiological behaviour of the tissues or any pathological changes taking place in them, or by modifying the normal metabolism of cells or of invading micro-organisms. (Such pharmacological action may also be a secondary function of certain other dental materials.)

5.021 compressive stress (nominal): Compressive load per unit area of original cross-section carried by the test piece at any time during the compressive test. It is expressed in megapascals (MPa) [newtons per square millimetre (N/mm²)].¹⁾

5.022 compressive strength: Maximum compressive stress (nominal) carried by the test piece during a compressive test. It may or may not be the compressive stress (nominal) carried by the test piece at the moment of rupture. It is expressed in megapascals (MPa) [newtons per square millimetre (N/mm²)].¹⁾

5.023 maximum force, F_m : Greatest force which the test piece withstands during the test.²⁾

5.024 stress: Force at any moment during the test divided by the original cross-sectional area, S_0 , of the test piece.²⁾

5.025 compression set: Permanent strain expressed as a percentage of the initial length of a specimen which has been subjected to a compressive force under specified conditions.

5.026 tensile strength, R_m : Stress corresponding to the maximum force, F_m .²⁾

5.027 tension set: Permanent strain expressed as a percentage of the initial length of a specimen which has been subjected to a tensile force under specified conditions.

5.028 yield stress: When the metallic material exhibits a yield phenomenon, a point is reached during the test at which plastic deformation occurs without any increase in the force.²⁾

5.029 upper yield stress, R_{eH} : Value of stress at the moment when the first decrease in force is observed.²⁾

5.030 lower yield stress, R_{eL} : Lowest value of stress during plastic yielding, ignoring any transient effects.²⁾

5.031 proof stress of non-proportional elongation, R_p : Stress at which a non-proportional elongation is equal to a specified percentage of the original gauge length, L_0 . The symbol used shall be followed by a suffix giving the prescribed percentage of the original gauge length, for example: $R_{p0.2}$.²⁾

5.032 proof stress, total elongation, R_t : Stress at which total elongation (elastic elongation plus plastic elongation) is equal to a specified percentage of the original gauge length, L_0 . The symbol used shall be followed by a suffix giving the prescribed percentage of the original gauge length, for example: $R_{t0.5}$.²⁾

1) Definition taken from ISO 604 : 1973, *Plastics — Determination of compressive properties*.

1) Definition taken from ISO 604 : 1973, *Plastics — Determination of compressive properties*.

2) Definition taken from ISO 6892 : 1984, *Metallic materials — Tensile testing*.

5.033 flexural strength: Maximum flexural stress which a body can withstand before permanent deformation or fracture.

5.034 flexural stress: Stress produced within a body when it is flexed by an applied force.

5.035 flexural strain: Instantaneous deformation of a body produced by a flexural stress.

5.036 flexibility: Property of a solid material to exhibit elastic deformation under relatively low or moderate stress.

5.037 hardness: Resistance of a material to indentation or scratching.

NOTE — Different methods of evaluating hardness give different ratings because they are measuring somewhat different quantities and characteristics of the material. There is no absolute scale for hardness, therefore to express hardness quantitatively each type of test has its own scale of arbitrarily defined hardness.

5.038 indentation hardness: *Hardness* as evaluated from measurement of area or depth of the indentation made by pressing a specified indenter into the surface of a material under specified loading conditions.

5.039 consistency: Viscosity, plasticity or gravitational flow of a material under prescribed conditions.

5.040 standard testing consistency: *Consistency* specified for use in preparing the test specimens.

5.041 annealing: Defined heat treatment intended to produce a stable molecular arrangement necessary to obtain desired properties of a solid material.

5.042 abrasivity: Property of a material to wear away other materials by friction.

5.043 viscosity: Resistance to flow under stress.

5.044 particulate contaminant: Undesirable foreign particles in a material.

5.045 colour stability: Property of a material to retain its colour over a period of time and in a specified environment.

5.046 shelf life: Time from the date of manufacture, during which a material retains the properties necessary for its prescribed purposes.

5.047 storage conditions: Conditions such as packaging, handling, exposure to humidity, heat, light and radiation, which could influence the *shelf life* of a material.

5.048 working time: Period of time, measured from the start of mixing, during which it is possible to manipulate a *dental material* without an adverse effect on its properties. Working time comprises *mixing time*, *doughing time* when appropriate and *manipulation time*.

5.049 mixing time: That part of the *working time* specified or required in order to obtain a satisfactory mix of the components of a *dental material*.

5.050 doughing time: That part of the *working time* measured from the end of the *mixing time* until the time a material is ready for manipulation.

5.051 manipulation time: That part of the *working time* measured from the end of mixing or the end of the *doughing time* where appropriate, during which it is possible to manipulate a *dental material* without an adverse effect on its properties.

5.052 solubility and disintegration (leachability) of a dental cement: Percentage of mass lost by specimens of prescribed dimensions when, after a specified interval, they are placed for a given time in a liquid the composition and temperature of which are, like other criteria and conditions, prescribed for each particular material.

5.053 setting time of a dental cement: Period of time measured from the start of mixing until the cement has set according to criteria and conditions prescribed for each particular material.

NOTE — For technical reasons (for example capsulated materials) certain specifications may require the setting time to be measured from the end of mixing.

5.054 condensation of dental amalgam: Act of packing the freshly mixed amalgam into a tooth cavity or a mould so as conveniently to fill them while expressing excess mercury.

5.055 sprue-way: Canal in the investment through which a material flows into the mould to make a casting.

5.056 sprue: That portion of the casting that is formed in a sprue-way.

5.057 sprue-former: Pattern, prefabricated or not, used to form a sprue-way in the investment.

5.058 (dental) flask: Container, often sectional, intended to hold the *mould* in which a polymeric dental prosthesis will be formed and/or processed.

5.059 mould: Form into which a material is injected, cast or pressed so as to be given a particular shape.

5.060 sprue button: Metal mass remaining in the supply funnel of the sprue-ways after casting.

5.061 to cast: To produce an object of desired shape by pouring or injecting a metal or other material in the liquid state into a mould in which it solidifies.

5.062 to burnish: To rub a metallic surface with a hard and smooth instrument in order to polish and harden it and, in the case of a restoration, to improve its marginal adaptation.

5.063 weld (joint): Joint resulting from the process of *welding*.

5.064 brazed joint: Joint resulting from the process of brazing.

5.065 brazed weld: Joint resulting from the process of braze welding.

5.066 filler metal: Metal added in making a brazed, soldered or welded joint.

5.067 welding: Operation by which two or more parts are united, by means of heat or pressure, or both, in such a way that there is continuity of the nature of the material between these parts. A filler material, the melting temperature of which is of the same order as that of the parent material, may or may not be used.¹⁾

5.068 brazing; hard soldering: Process of joining metals in which, during or after heating, molten metal is drawn by capillary action into the space between closely adjacent surfaces of the parts to be joined. In general, the melting point of the *filler metal* is above 450 °C, but always below the melting temperature of the parent metal.¹⁾

5.069 soldering; soft soldering: Operation in which metallic parts are joined by means of a *filler metal* having a melting temperature lower than that of the parts to be joined and in general lower than 450 °C, and wetting the parent metal(s). The parent metal(s) does (do) not participate by fusion in making the joint.¹⁾

NOTE — The above definition is relative to welding. In dentistry, use is made of soft solders, which are filler metals having a melting point generally below 450 °C and hard solders, which are filler metals having a melting point generally above 450 °C.

5.070 soudobrasage; braze welding (including bronze welding): Brazing method in which a joint of the open type is obtained step by step, by an operating technique similar to fusion *welding*, with a *filler metal* the melting temperature of which is higher than 450 °C.¹⁾

1) Definition taken from ISO 857 : 1979, *Definitions of welding processes*.

5.071 pickling: Process of removing surface oxides or other surface contaminants from metals by immersing, usually while hot, in acid.

5.072 to flask: Act of investing in a *flask*.

5.073 to deflask: Act of removing an object from the *flask* in which it has been formed.

5.074 to invest: To surround or embed in an investment material.

5.075 heat treatment of metals and alloys: Controlled and reproducible heating and cooling of a solid metal or alloy in such a way as to attain desired conditions or properties (heating for the sole purpose of hot working is excluded from the meaning of this definition).

The purpose is to obtain either homogeneity or modification of mechanical and physical characteristics using diffusion and/or germination and/or precipitation and crystalline growth phenomena.

5.076 corrosion: Physico-chemical interaction between a metal or an alloy and its environment resulting in a partial or total destruction of the metal or in a change of its properties.

5.077 corrosion resistance: Property of resisting *corrosion* under prescribed conditions.

5.078 equilibrium temperature diagram (of an alloy system): Graphical representation of the variations in the physical states of an alloy system. In the case of a binary system, the temperature is plotted on the ordinate scale and the composition on the abscissae.

5.079 liquidus: In a constitution or equilibrium diagram, the locus of points representing the temperatures at which the various compositions in the systems begin to freeze on cooling or to finish melting on heating.

5.080 solidus: In a constitution or equilibrium diagram, the locus of points representing the temperatures at which the various compositions finish freezing on cooling, or begin to melt on heating.

5.081 linear thermal expansion: Amount by which the distance between two points on a solid changes with change of temperature.

5.082 linear thermal expansion coefficient: Change in length per unit length of a solid when its temperature is raised or lowered by 1 °C.

5.083 opacification: Partial or total loss of translucency of a material.

5.084 crazing (relating to plastics): Fine cracks at or under the surface of a plastics material.

5.085 creep: Time-dependent part of the flow of a material excluding instantaneous strains.

5.086 flow: Plastic deformation under force exhibited by certain materials, under certain conditions.

5.087 cold flow: Plastic deformation at room temperature.

5.088 porosity: Presence of multiple small voids in the surface and/or body of a material.

5.089 bonding: Process by which two or more components are made integral by exchanging atoms at their interface.

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